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| 09/998,225 | 12/03/2001 | Fumirou Abe | 826.1775 | 6631 |

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| EXAMINER |
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LU, KUEN S

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| ART UNIT | PAPER NUMBER |
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2177

DATE MAILED: 04/02/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/998,225

Applicant(s)

ABE ET AL.

Examiner

Kuen S Lu

Art Unit

2177

Period for Reply
-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/12-03-01.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-4, 6-9, 11-14, 16-20 and 22 are rejected are rejected under U.S.C. 103(a) as being unpatentable over Kato et al. (U.S. Patent 6,094,647, hereafter "Kato") in view of Cusson et al. (U.S. Patent 6,385,605, hereafter "Cusson").

As per claims 1, 6, 11, 16, 17 and 22, Kato teaches the following:

"A pattern retrieving method for use with a pattern retrieval apparatus connected to a plurality of terminal devices through a network" at Fig. 74, elements 1000, 1200, 2200, 5200 and 6200, and col. 78, lines 21-43 where a plurality of terminal devices are connected through a network for pattern searching and retrieval, "comprising: receiving a retrieval condition" at Fig. 25, elements 2501, 2503 and 2541, and col. 30, line 62 – col. 31, line 34 where search expression with complex search condition is received, "transmitted from each of the plurality of terminal devices" at Fig. 74, elements 1000, 1200, 2200, 5200 and 6200, and col. 78, lines 21-43 where a plurality of terminal devices are connected to a network for conducting search and transmitting search

expression, "together with terminal device information for designation of each of the terminal devices, including a retrieval pattern and a retrieval expression for retrieval of data to be searched" at Fig. 72, elements 1150 and 1100, and col. 75, lines 20-26 where terminal device information is under the control of the search machine control program for sending back the search result; and

"storing the received retrieval condition and the terminal device information in a retrieval condition buffer" at col. 76, lines 27-40 where received search expression is received and transmitted through the search control computer to the search engine while the terminal device information is controlled by the search control computer. The result of search generation program is then written into the search engine.

Kato does not specifically teach "determining whether or not a preceding retrieving process is being performed".

However, Gusson teaches determining if the retrieval process executed by obtaining a data item required by an application program from the cache at Fig. 6, steps 605-609. If the data item is missing, the data item will be queried and retrieved from the data source through network at Fig. 6, steps 609-613.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Cusson's reference with Kato's by implementing cache as an extended storage device and a logic determining tool such that the cache could have kept information for answering frequently made queries and returning result more quickly by avoiding the overhead of the hops of the data access.

Cusson further teaches “when it is determined that the preceding retrieving process is not being performed, generating a retrieval pattern variable table in which a retrieval pattern and a first variable having the retrieval pattern as a value are associated with each other if there are two or more identical retrieval patterns in the retrieval patterns stored in the retrieval condition buffer, excluding retrieval patterns other than one retrieval pattern” at Fig. 7, element 719 and col. 12, line 64 – col. 13, line 5 by examining the presence of missing entry in the miss table to determine if a query to the database should be performed where a missing entry represents query made to a row-set in a source server and each miss table entry includes in addition to status field a field indicating the user context, a field indicating a source database, and a field indicating an SQL query. Furthermore, the miss table is updated by miss table manager utilizing hash function and indexing which can avoid duplicate of table entries; and “retrieval request expression indicating the retrieval pattern using the first variable and a second variable having the retrieval request expression as a value are associated, and the retrieval request expression indicating the terminal device information and the retrieval expression using the second variable and the second variable having the retrieval request expression as a value are associated based on the retrieval expression, including variable and condition expression, and the terminal device information stored in the retrieval condition buffer unit” at Fig. 25, elements 2501-2507 by retrieving, analyzing and executing the search expression including variables and elements 2541-2545 for complex condition analysis and judging. Furthermore, Kato teaches terminal device information is under the control of the search machine control

program for sending back the search result at Fig. 72, elements 1100, and col. 75, lines 20-26.

Kato does not specifically teach "generating a retrieval request expression table" and "retrieval pattern variable table".

However, Cusson teaches creating miss table whose entries having status field and a <user, server, query> triplet field.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Cusson's reference with Kato's by creating a miss table for recording the status information of query result on the cache because by doing so the data retrieval would have been more efficient since the combined implementation of miss table and cache operation would have required much less I/Os.

Kato teaches "extracting a retrieval result matching the retrieval condition transmitted from each of the plurality of terminal devices by searching the retrieval target database storing the data to be searched according to the generated retrieval request expression variable table" at Fig. 25, elements 2510s, 2506 and 2546 where query result is extracted and stored; and "transmitting the extracted retrieval result to each of the plurality of terminal devices" at elements 2546, 2550 and 2520 where query result is transmitted to the user by identifying the user's terminal device under the control of the search machine control program for sending back the search result at Fig. 72, elements 1150 and 1100, and col. 75, lines 20-26.

As per claims 2, 7, 12 and 18, Kato teaches "retrieval condition buffer stores the retrieval condition" at col. 32, lines 1-12 where search control computer receives

complex condition and delivers to neighbor, contextual and logical condition analysis programs.

Kato does not specifically teach the condition stays in buffer until it is determined that a retrieving process is completed.

However, Cusson teaches refreshing pages in the cache by using least recently used status at col. 3, lines 49-50.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Cusson's reference with Kato's by implementing miss table and refreshing cache content because by doing so the consistency of content between cache and data source could have been maintained and LRU could have been used to determine which data to be kept.

As per claims 3, 8, 13 and 19, Cusson further teaches "retrieval condition buffer stores the retrieval condition until a predetermined time is reached or a predetermined capacity is filled" by using LRU algorithm to determine which data to be replaced when new data is to be cached.

As per claims 4, 9, 14 and 20, Kato teaches "retrieval simultaneously retrieves a plurality of retrieval patterns" at Fig. 17, element 'Text' and step 'SEARCH RESULT' show a plurality of retrieval documents retrieved.

2. Claims 5, 10, 15 and 21 are rejected are rejected under U.S.C. 103(a) as being unpatentable over Kato et al. (U.S. Patent 6,094,647, hereafter "Kato") in view of Cusson et al. (U.S. Patent 6,385,605, hereafter "Cusson"), as applied to claims 1-4, 6-9, 11-14, 16-20 and 22, and further in view of Sundaresan (U.S. Patent 6,487,566).

As per claims 5, 10, 15 and 21, the combined Cusson-Kato reference teaches pattern retrieval from a plurality of users on a network environment as described in Item 1.

The combined reference does not teach "retrieval is performed in one of an Aho-Corasick (AC) method, an Expanded-Boyer-Moore (EBM) method, and a Shinohara-Arikawa (SA) method".

However, Sundaresan teaches pattern matching logic by using Aho-Corasick method as illustrated in Fig. 3, steps 300-322 where XML file is received, transformed and generated.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Sundaresan's reference with Cusson and Kato's by implementing the Aho-Corasick method for transforming pattern matched XML document from one XML form to another because by doing so pattern matching and automatic, dynamic document transformation could have been performed at the same time since XML is such a common language and the dynamic transformation would have been great time saver to users of Kato's system.

Conclusions


3. The prior art made of record
 - A. U.S. Patent No. 6,094,647
 - B. U.S. Patent No. 6,385,605
 - C. U.S. Patent No. 6,487,566

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

D. U.S. Patent No. 6,029,165
E. U.S. Patent No. 6,385,605
F. U.S. Patent No. 6,526,400
G. U.S. Patent No. 6,584,465
H. U.S. Patent No. 6,493,705

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuen S Lu whose telephone number is 703-305-4894. The examiner can normally be reached on 8 AM to 5 PM, Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on 703-305-9790. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Kuen S. Lu
Patent Examiner
March 29, 2004


JOHN BREENE
SUPERVISORY PATENT EXAMINER
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